# ASYMMETRIC DIGITAL SUBSCRIBER LINE TELEPHONE FILTER

## BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates to an asymmetric digital subscriber line telephone filter and, more particularly, to such an asymmetric digital subscriber line telephone filter which has a communication cable with a RJ45 plug for connection to the RJ45 jack of an asymmetric digital subscriber line in the wall, and two RJ45 jacks adapted to receive a telephone line and an external asymmetric digital subscriber line.

Asymmetric digital subscriber lines are intensively used nowadays. However, the use of an asymmetric digital subscriber line cannot simultaneously receives a telephone and a fax machine or modem. In order to let an asymmetric digital subscriber line simultaneously receive a telephone and a fax machine or modem, a T-adapter may be used. As illustrated in Figure 1, the T-adapter **71** is connected to a module jack **81** in the wall **8** to receive the module plug **721** of a filter **72**, which in turns receives the module plug **731** of a telephone line **73**, and the module plug **741** of an external asymmetric digital subscriber line communication line **74**. This arrangement uses more number of parts. Further, the use of the T-adapter **71** and the filter **72** requires much installation space.

The present invention has been accomplished to provide an asymmetric digital subscriber line telephone filter, which eliminates the drawbacks of the use of the conventional T-adapter. According to the present invention, the asymmetric digital subscriber line telephone filter comprises a RJ45 plug disposed at one side for connection to an asymmetric digital subscriber line jack

in the wall, and two RJ45 jacks disposed at an opposite side in communication with the RJ45 plug and adapted to receive the RJ45 plug of a telephone line and the RJ45 plug of an external asymmetric digital subscriber line. Because the invention eliminates the use of the aforesaid T-adapter, less number of parts is used, and less installation space is needed.

## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a circuit block diagram showing the application of the prior art design.

Figure 2 is a circuit block diagram showing the application of the present invention.

Figure 3 is an exploded view of the present invention.

Figure 3A is an enlarged view of a part of Figure 3.

Figure 4 is an exploded view of the present invention when viewed from another angle.

Figure 4A is an enlarged view of a part of Figure 4.

Figure 5 is a perspective view of the circuit board according to the present invention.

Figure 6 is a perspective view of the asymmetric digital subscriber line telephone filter according to the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures from 2 through 6, an asymmetric digital subscriber line telephone filter in accordance with the present invention is generally comprised of a top cover shell **1**, a circuit board **2**, and a bottom cover shell **3**.

The top cover shell **1** comprises a plurality of hook holes **12** bilaterally disposed at the bottom side thereof, a front opening **13** transversely disposed at the front side thereof, and two bottom locating rods **11**. The bottom locating rods **11** each have a round pin **111** axially downwardly extended from the respective bottom end. The diameter of the round pin **111** is relatively smaller than the respective bottom locating rods **11**. The circuit board **2** comprises a winding **202**, a capacitor **203**, two through holes **201**, two RJ45 jacks **21**, and a communication cable **22**. The communication cable **22** has one end electrically soldered to the circuit board **2**, and an opposite end terminating in a RJ45 plug **221**. The bottom cover shell **3** comprises a plurality of top hooks **32** bilaterally disposed at the top side thereof corresponding to the hook holes **12** of the top cover shell **1**, a front opening **33** transversely disposed at the front side thereof corresponding to the front opening **13** of the top cover shell **1**, and two upright locating posts **31**. The upright locating posts **31** each define a plughole **311**.

Referring to Figures from 2 through 6 again, the circuit board **2** is put in the bottom cover shell **3** and supported on the upright locating posts **31**, and then the top cover shell **1** is closed on the bottom cover shell **3** to force the round pin **111** of

each of the bottom locating rods **11** into the plughole **311** of each of the upright locating posts **31** and the hook holes **12** into engagement with the top hooks **32** of the bottom cover shell **3** respectively. When assembled, the receiving side **211** of each RJ45 jack **21** of the circuit board **2** is disposed in the openings **13** and **33** of the cover shells **1** and **3**.

Referring to Figure 2 again, when in use, the RJ45 plug **221** of the communication cable **22** is fastened to the RJ45 jack **41** of the symmetric digital subscriber line in the wall **4**, one of the RJ45 jacks **21** of the circuit board **2** receives the RJ45 plug **51** of the symmetric digital subscriber line communication line **5**, and the other of the RJ45 jacks **21** of the circuit board **2** receives the RJ45 plug **61** of the telephone line (or fax communication line/modem communication line) **6**.

A prototype of symmetric digital subscriber line telephone filter has been constructed with the features of Figures 2~6. The symmetric digital subscriber line telephone filter functions smoothly to provide all of the features discussed earlier.

Although a particular embodiment of the invention has been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims. For example, screw means may be used to fixedly secure the top cover shell **1** to the bottom cover shell **3** instead of the engagement between the hooks **32** and the hook holes **12**.